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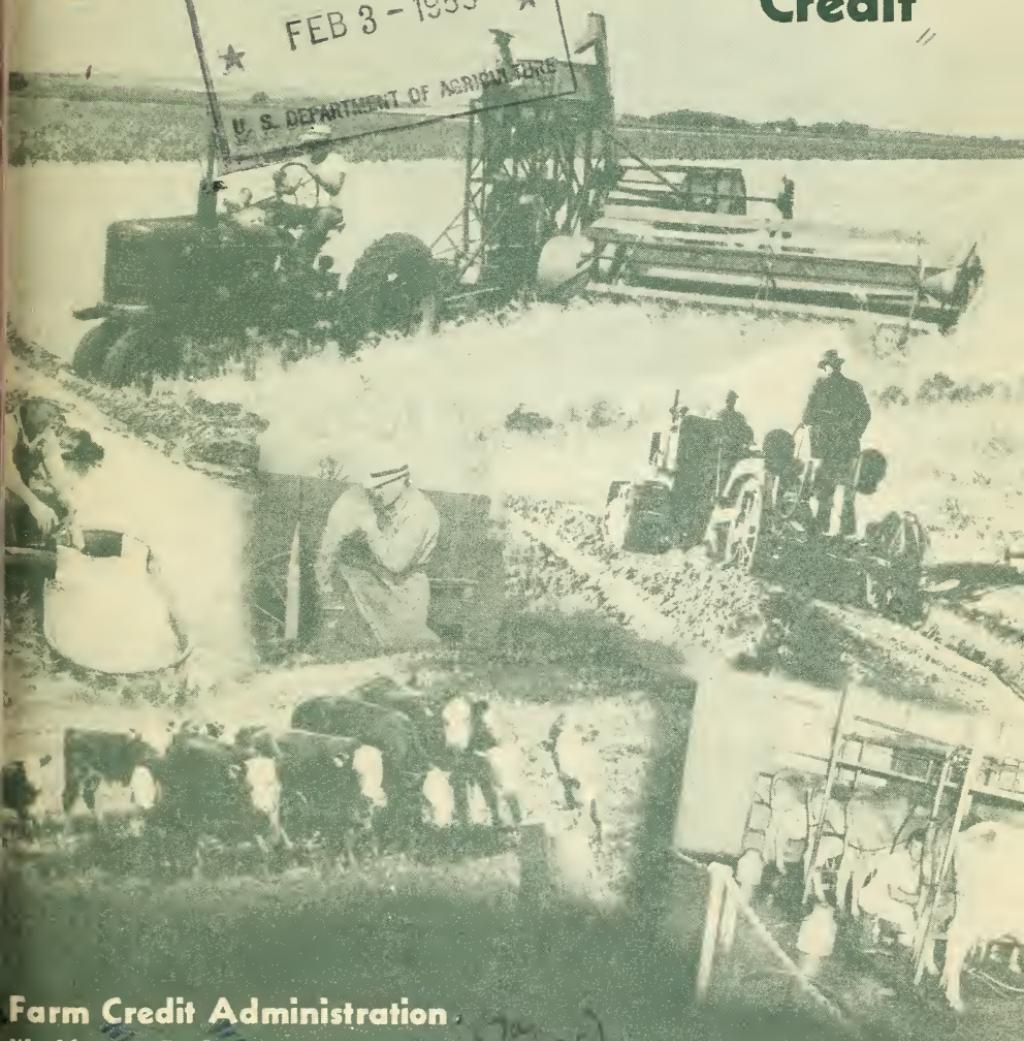
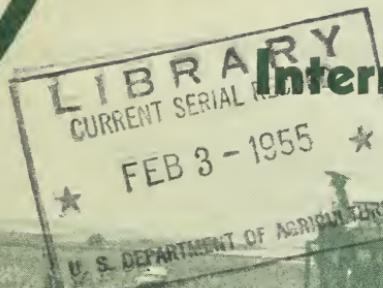


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Farmers'

Needs for Intermediate-Term Credit



Farm Credit Administration

Washington, D. C.

in cooperation with

Purdue University

Agricultural Experiment Station

Bulletin CR-6

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FOREWORD

A significant development in agriculture in recent years has been the increased amounts of credit farmers need. Such increases are due to large capital investments occasioned by: (1) a trend toward more mechanization, (2) land improvement programs, including soil conservation and related practices, and (3) greater diversification which, in addition to soil improvements, generally involves better pastures, the purchase of livestock, and the necessary fencing, shelter, and other requirements in livestock farming.

Investments for these purposes have affected not only the amounts of credit needed by farmers, but also have presented special problems with respect to adjusting loan repayment to the time when farmers have returns from crop and livestock sales. Questions have been raised whether lenders have adapted their credit services adequately to meet changing needs of farmers.

Farmers are already provided such financing in substantial amounts by institutions supervised by the Farm Credit Administration. It is an eligible purpose for land bank loans made through national farm loan associations and also for loans made by production credit associations and other farm lenders using the Federal intermediate credit banks.

The Farm Credit System provides a well-rounded credit service

for farmers and farm cooperatives and is designed to be a pace setter in the agricultural credit field with respect to terms, interest rates, and loan servicing practices. As such, the Farm Credit Administration has encouraged and participated in studies designed to show whether the credit services under its supervision are adequately adapted to meet, on a sound basis, the current credit needs of farmers.

This is a report of such a study. It deals with financing farming adjustments with special reference to credit cooperatives supervised by the Farm Credit Administration. Under a cooperative agreement between the Farm Credit Administration and the Purdue University Agricultural Experiment Station, Lafayette, Ind., Lawrence E. Kreider, a graduate student at Purdue University, was employed by the Farm Credit Administration from July 1, 1951, to June 30, 1952, to make this study. Expenses after June 30, 1952, were met by the Purdue Experiment Station. Mr. Kreider completed a detailed report in the summer of 1953 and presented it to Purdue University in partial fulfillment of the requirements for a doctor of philosophy degree. In this study, the views expressed are his own and are not necessarily those of the Experiment Station or the Farm Credit Administration. He is now the agricultural economist at the Federal Reserve Bank of St. Louis.

SUMMARY

WHAT are farmers' needs for intermediate-term credit? This study reveals the extent to which intermediate-term credit is needed for farm adjustments. Improved farm organization, better soil fertility practices, and more efficient livestock herds as well as buildings and fences needed in livestock production are major improvements considered.

The information was obtained by (1) interviewing 174 farmers and farm leaders including 56 farmer-members of credit cooperatives—national farm loan associations (NFLA's) and production credit associations (PCA's)—who had farm improvement programs, (2) studying improvement programs on three farms, and (3) examining loan renewals in a PCA.

The highlights of the study are:

1. Important as credit may be, it is only one of a number of factors influencing the success of farm improvement programs.

Farmers and farm leaders said the individual farmer's initiative and farm management ability were far more important than credit factors.

2. Lenders contribute to the success or failure of farm improvement programs.

On two of the three farms studied farmers were able to make more rapid progress by following the plans which the lender encouraged instead of their original improvement plans.

On the third farm, however, the farmer probably would have progressed more rapidly by following his original plan but could not do so because the lender restricted the amount of credit available. Farmers and farm leaders interviewed apparently were aware of the effect lenders have on farm improvement programs. They concluded that lenders to give wise counsel needed an appropriate background including formal training in farm management, practical farm experience, and familiarity with area resources.

3. While farm improvement programs require large investments, increased farm returns are high after sound improvement programs have been completed.

On the 56 farms where improvement programs were carried out, net farm income increased 82 percent over a 7-year adjustment period. Net worth increased 74 percent or three times more than the average for the United States.

4. Loan repayments should be spread over a period of years since the investments generally are made over a period of 2 to 7 years and are of sufficient size to preclude repayment within 12 months.

Farmers and farm leaders for the most part agreed that there were advantages in having the notes written for terms about the same as the expected repayment period. Most of them also agreed, however, that the advantages of an annual review of the farmer's financial and

physical progress cast the balance in favor of 12-month notes with renewal privileges. The latter view was expressed most frequently by farmers and farm leaders associated with PCA's and familiar with the PCA annual note and renewal policies.

5. PCA experience indicates that farm improvements can be financed effectively with annual maturity notes and appropriate renewals.

This was demonstrated in a detailed study of loans and renewals of one PCA which has made a substantial volume of loans for financing farm improvements.

6. In financing farm improvements, a proper balance between long- and short-term credit should be maintained.

While short-term credit is necessary to attain the credit flexibility needed for improvement programs, long-term credit usually is needed to get low-cost credit and to provide added assurance of money for longer periods of time.

7. Farmers need more information on the services available from credit cooperatives and other lenders financing farm improvements.

This study revealed that only 7 out of 69 NFLA members in one

Farm Credit district knew about a farm improvement loan available from such associations in that district. Other studies have indicated that relatively few farmers in some areas are familiar with the credit cooperatives in their communities. To meet the need of more widespread information on all types of loans, farmers and farm leaders interviewed suggested more personal contacts between members of the cooperative credit associations, association officers, and other farmers. Mail campaigns; advertising by paper, magazine, and radio; meeting with groups; and maintaining close contacts with county agents and other agricultural leaders were also mentioned. Credit cooperatives can meet this challenge primarily by continued personal contacts between association officers, members, other farmers, and other local leaders.

Cooperative credit has made a significant contribution to agricultural progress by providing credit for farm improvements. Continued policy adjustments by the Farm Credit Administration over a period of time, with emphasis on the farm improvement credit needs of the progressive and more productive farmers, will be a great service to American agriculture.

Farmers' Needs

for

Intermediate-Term Credit

by Lawrence E. Kreider

FARMERS, by following improved practices and making capital improvements over a period of years, can further increase the productive capacity of American agriculture. They can do this by continuing to combine land into larger and more efficient units with the help of additional mechanization, by developing more economically sized livestock herds, by improving soil fertility practices, and by making further shifts to better crop systems.

Farmers engaged in improvement programs often need credit for more than a year. This need for an intermediate-type loan with repayment plans between the traditional 12-month or shorter loan and the 10- to 30-year long-term loan has come about largely because of the length of time required to repay farm improvement loans.

In addition, farmers' increased need for intermediate-term credit has come about because of the larger proportion of their total investments in movable property. For example, investments of United

States farmers, other than land, buildings, and other improvements to the land, accounted for 31 percent of the total physical farm assets on January 1, 1940. By January 1, 1954, these investments had climbed to 36 percent.¹ Machinery accounted for nearly all the increase, going from 7 percent of the total in 1940 to 14 percent on January 1, 1954. In addition to movable improvements, buildings, such as dairy barns, corn cribs, and grain storage bins, plus fencing and soil fertility improvements, require large expenditures which often cannot be repaid in a year.

The need for intermediate-term farm loans has been widely recognized during the past two decades. Various plans for meeting the credit needs for soil conservation, shifts in type of farming, and general farm improvements have been proposed. Farmers through their farm organizations in 1953 voiced a renewed demand for intermediate-term credit.

¹ Production Economics Research Branch, Agricultural Research Service, U. S. Department of Agriculture.

Note: Special acknowledgment is due Howard G. Diesslin, Associate Professor, Agricultural Economics Department, Purdue University, and Russell C. Engberg, Chief, Economic and Credit Analysis Division, Farm Credit Administration, Washington, D. C., for their guidance and supervision.

Resolutions adopted by the National Grange recommended “* * * that adequate long-term loan facilities be available to farmers through the Farmers Home Administration, Farm Credit Administration and private lending institutions to carry out good soil conservation practices.” The American Farm Bureau Federation proposed a study of “* * * the possibility of substituting a program of long-term low-rate interest loans for the present agricultural conservation payment program.” It also advocated “* * * a policy on the part of

private lending institutions to make production loans for longer periods of time.”

During the first session of the 83d Congress, a number of bills were introduced which were designed to modify credit services available for these purposes. Moreover, during the hearings conducted throughout the United States by the House Committee on Agriculture, during the fall and winter of 1953-54, there was testimony indicating that credit facilities for financing farming adjustments were not adequate.

How the Study Was Made

The Farm Credit Administration and the Agricultural Experiment Station, Purdue University, co-operated in making this study. It is designed to determine (1) whether a gap between long-term and short-term credit actually does exist; (2) if so, what are the related problems; and (3) what can credit cooperatives, supervised by the Farm Credit Administration, do to improve facilities for financing farm adjustments?

There are four parts to this study:

1. Fifty-six farmer-members of cooperative credit agencies—national farm loan associations (NFLA's) and production credit associations (PCA's)—gave information on their 7-year farm improvement programs. These farmers had made extensive improvements or were carrying out improvement programs on their farms. The association secretary-treasurers helped select them. Information obtained included type of

improvement, year made, costs, estimated effect upon net farm income, and credit used up to the year of the interviews.

2. One hundred seventy-four farmers and farm leaders answered questions related to farm improvements and the use of credit for farm improvements. These included 63 farmer-members of cooperative credit agencies (non-directors) who had been or were carrying on improvement programs on their farms, 81 cooperative credit officers or directors, and 30 county agricultural agents or Soil Conservation Service representatives. These farmers and farm leaders lived in the upper Coastal Plain of Georgia, southern Indiana, western Kentucky, south central Nebraska, and western Vermont.

3. Three farms were studied to get detailed information on the improvement program followed and an alternate program.

4. A detailed study of loan re-

news was made in the Jackson Purchase PCA in western Kentucky.

The opinions expressed by farmers and farm leaders, information

from farmers on their farm improvement programs, data from the detailed study of three farms, and the study of loan renewals are summarized in this report.

Role of Credit and Lenders in Farm Improvement Programs

Credit Only One Factor

Credit is only one of a number of factors influencing farmers in undertaking improvement programs.

In response to the question, "What or who influences most farmers in your community to start improvement programs on their farms?" only 8 percent of the 174 farmers and farm leaders gave the "availability of favorable credit terms". All of the other influences mentioned were non-credit. Approximately two-thirds replied "no" to the question on whether the lack of "adequate" credit had slowed down farm improvements in their respective communities. Likewise they were asked, "Which limits farm improvements more: (1) availability of credit or (2) interest and management capabilities of farmers?" Eighty-five percent said that interest and management capabilities of farmers were the limiting factor. Only 15 percent cited availability of credit. This view is confirmed in other studies.²

From these findings, it appears that availability of credit is not a major factor in influencing farmers' decisions to undertake improvement programs. However, for those farmers who need credit for such programs, it is important that they have financing available on a sound basis and suitable to their needs. As part of their goal of providing leadership in financing farmers, credit cooperatives, therefore, should consider whether their employees have been adequately trained and whether their personnel policies and procedures have been fully developed on an effective as well as sound basis.

Lenders' Responsibilities

Lenders have a great responsibility in developing farm improvement programs. Through credit they may influence a farmer's plan of work and his progress.

As a farmer's management ability is important for his success, so also is a lender's ability to recognize farm management capability im-

² Earl O. Heady and Earl R. Swanson, *Resource Productivity in Iowa Farming*, Research Bulletin 388, June 1952, Iowa Agricultural Experiment Station; John C. Frey, *Some Obstacles to Soil Erosion Control in Western Iowa*, Research

Bulletin 391, October 1952, Iowa Agricultural Experiment Station; North Central Regional Publication *Obstacles to Conservation on Midwestern Farms*, Bulletin 574, June 1952, Missouri Agricultural Experiment Station.

tant for both a farmer's and a lender's success. Lenders, therefore, need to be well informed regarding the elements of sound improvement programs.

What type training will help lenders to be well informed? Farmers and farm leaders were asked, "What training or information should be made available to credit agency personnel which would enable them to provide better credit service for farm improvement loans?" Some type of formal training was mentioned in 25 percent of all replies. In addition, "practical farm experience," "maintaining close working relationships with county agricultural agents and others in the community," and "familiarizing themselves with land values, people, and farming in the area in which they work" were suggested in 23, 15, and 15 percent respectively of all replies.

While desirable for lenders to have the qualifications suggested, farmers and farm leaders said that the major help to farmers in making improvement plans and following them through should come from such sources as the Soil Conservation Service and the county agent. However, lenders also should take an active part in giving assistance. All agreed that a lender should discuss the proposed plan with a farmer at the time he applies for credit for improvement purposes and give whatever counsel he can. In support of this view, it was stated that borrowers need such counsel, credit agencies are in a position to and should provide such assistance, and that this advice

would aid in making the loan on a sound basis.

Moreover, over 40 percent said a lender should render extensive assistance in making up the farm plan. Only about 18 percent of those interviewed, however, believed that the lender should go so far as to provide extensive supervision over the borrower in carrying out the plan being financed. The farmers and farm leaders felt borrowers might resent such supervision, and if a borrower were not capable of carrying out such a program, he would not be a desirable credit risk. It was also pointed out that extensive supervision would be extremely expensive for a credit agency and it would be impracticable to charge a sufficiently high interest rate to cover this cost.

Lenders contribute to the success or failure of improvement programs even though they do not provide extensive assistance in making the improvement plan or close supervision during the improvement plan.

The farm improvement program followed and credit used on three farms and an alternate program each borrower had considered were analyzed in detail. Income and expenses were computed for a 7-year period for each plan on the three farms. Actual figures were used in so far as possible. Estimated figures used were based on past actual data and on estimates of the borrower, county agent, and cooperative credit personnel. Prevailing prices were used up to and including 1950. Declining and less

**Financial Progress of Farmer X under the 7-Year Improvement Plan
Followed Compared with an Alternate Plan, 1948-54**

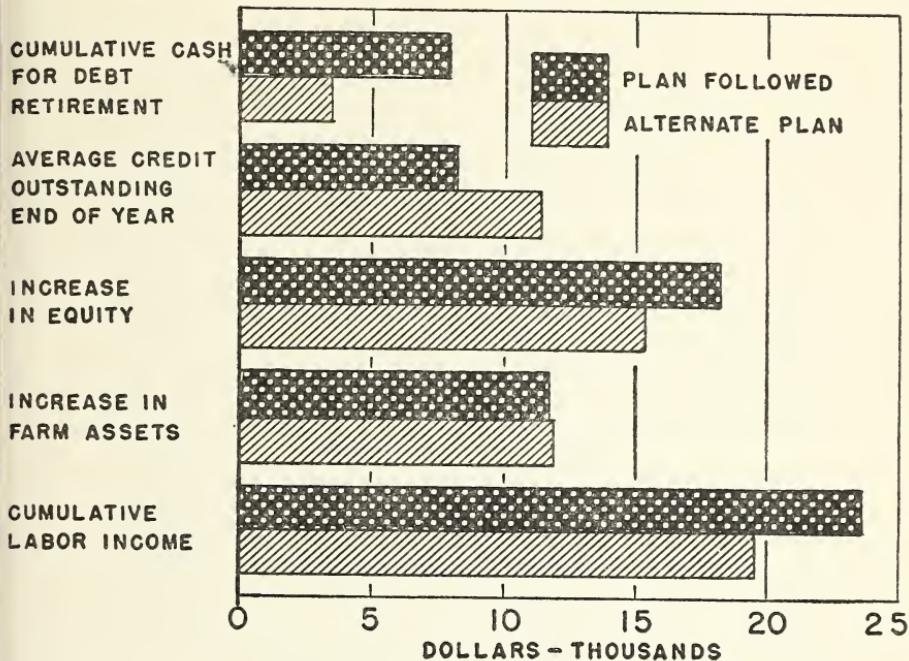


Figure 1

favorable price relationships were used for 1951 and subsequent years.

The lender helped Farmer X by not lending him money for a farm reorganization plan which did not appear sound.

Instead of lending money for a less desirable farm plan, as proposed by the borrower, the lender encouraged Farmer X to follow a farm plan which in the long run improved his financial progress more than he would have under his original plan. Farmer X started farming in 1948 with total assets of \$10,800, including 80 acres of slightly rolling to rolling land and inadequate livestock, machinery, and feed. His equity in the farm business was 40 percent.

Mr. X's improvement program began as soon as he started farm-

ing. Major improvements included heavy fertilizer applications and other fertilizer practices, pasture renovation (36 acres by 1952), and larger hog and beef breeding projects.

The improvement plan followed included 20 sows and 20 beef breeding cows by 1954.³ Farmer X originally planned to have only 10 sows but 30 beef cows. The lender was largely responsible for the borrower's shift to the plan followed. The greater emphasis on hogs was a strong point in the program because corn yields on this farm were high, and increased emphasis on hog production made the farm a more adequate sized unit.

³ The term "plan followed" is used to designate the improvement plan which was followed up to and including 1951 and expected improvement plan from 1952 to 1954, inclusive.

Table 1.—Receipts, expenses, and cash available for debt retirement under farm improvement plan followed and alternate plan, Farmer X in Indiana, 1948-54

Item	Year in improvement plan							Total
	1	2	3	4	5	6	7	
Plan followed:								
Cash receipts ¹	\$2,928	\$5,879	\$6,117	\$10,776	\$14,053	\$14,460	\$14,091	\$68,304
Total cash expenses ²	8,716	5,710	6,809	9,492	8,490	12,140	8,987	60,344
Cash farm expenses ¹	6,996	3,997	5,065	7,806	7,037	10,786	7,787	49,474
Living expenses ²	1,200	1,200	1,200	1,200	1,200	1,200	1,200	8,400
Interest ³	520	513	544	486	253	154	0	2,470
Cash available for debt retirement ⁴	-5,788	169	-692	1,284	5,563	2,320	5,104	7,960
Alternate plan:								
Cash receipts ¹	2,008	5,486	9,276	10,013	12,399	13,077	13,012	65,271
Total cash expenses ²	9,060	9,432	7,044	8,477	8,692	10,102	8,942	61,749
Cash farm expenses ¹	7,283	7,485	5,192	6,692	7,066	8,605	7,618	49,941
Living expenses ²	1,200	1,200	1,200	1,200	1,200	1,200	1,200	8,400
Interest ³	577	747	652	585	426	297	124	3,408
Cash available for debt retirement ⁴	-7,052	-3,946	2,232	1,536	3,707	2,975	4,070	3,522
Cumulative difference in debt retirement capacity (plan followed minus alternate plan)	1,264	5,379	2,455	2,203	4,059	3,404	4,438	4,438

hundredths was used because the average amount of short-term credit outstanding per year was assumed to be approximately three-fourths of the credit balance at the end of each year.

¹ Total receipts minus farm and family cash expenses. Cash expenses include operating expenses, \$1,200 yearly living expenses, and interest expense.

² Excluding interest cost.

³ Assumed to be \$1,200 per year.

⁴ Long-term credit cost was assumed to be 4 percent of long-term credit needed at the end of the year. Short-term credit interest cost was assumed to be .06 x .75 = 4.5 percent of short-term credit needed at the end of the year. Seventy-five

Farmer X, by following the alternate plan encouraged by the lender instead of the plan he originally wanted to follow, had (1) 126 percent more money available for debt retirement for the 7-year period, (2) a 27 percent lower yearly average volume of credit outstanding, (3) a slightly higher equity with lower total assets—thus a higher average equity ratio (ratio between equity and total assets)—and (4) a 23 percent higher labor income for the 7-year period (figure 1 and table 1). Of even greater significance, labor income of the plan followed was higher than the alternate plan after the improvement programs had been in effect long enough to demonstrate their real value (figure 2). In addition, Mr. X's equity increased from \$2,930 in January 1949

to \$18,780 in January 1954. During this same period, proprietors' equities in agriculture in the United States increased only 11 percent.

A lender in this case encouraged more efficient farm organization and, consequently, more rapid financial progress.

Farmer Y's progress also shows how a lender can help borrowers.

Mr. Y started farming in 1948. On January 1, 1949, his equity was \$6,854. Five years later he had an estimated equity of \$15,917. This was an increase of 132 percent compared with an average of only 11 percent for the Nation.

Mr. Y began his improvement program in 1948 when he purchased his first tract of land. He made major adjustments which included buying additional land and increas-

Labor Income of Farmer X under the 7-Year Improvement Plan Followed Compared with an Alternate Plan, 1948-54.

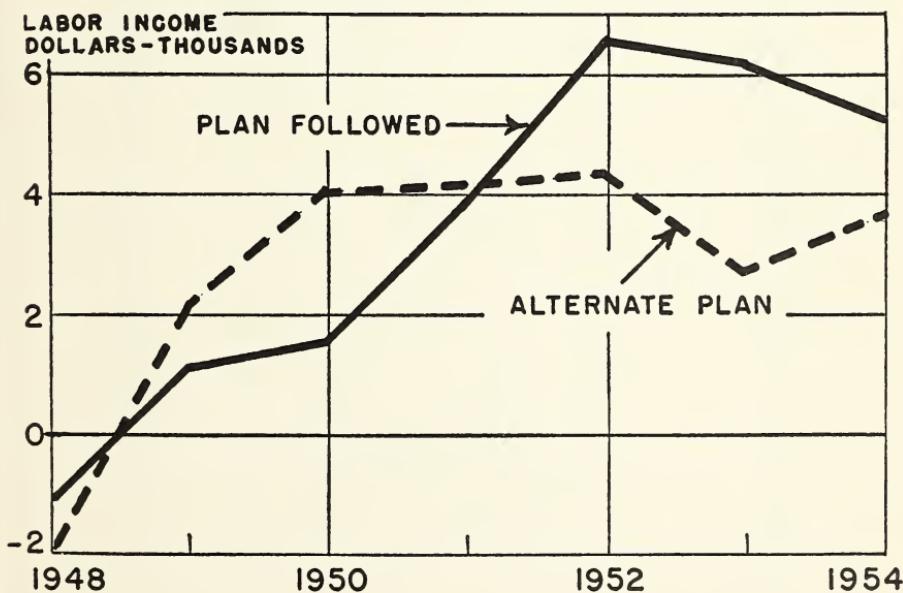


Figure 2

Table 2.—Receipts, expenses, and cash available for debt retirement under farm improvement plan followed and alternate plan, Farmer Y in Kentucky, 1948-54

Item	Year in improvement plan							Total
	1	2	3	4	5	6	7	
Plan followed:								
Cash receipts	\$2,923	\$3,541	\$4,056	\$5,396	\$7,255	\$8,772	\$10,009	\$41,952
Total cash expenses	4,976	3,521	7,107	6,756	5,004	4,644	4,898	36,906
Cash farm expenses ¹	3,648	2,194	5,653	5,246	3,590	3,403	3,698	27,432
Living expenses ²	1,200	1,200	1,200	1,200	1,200	1,200	1,200	8,400
Interest ³	128	127	127	254	310	214	41	0
Cash available for debt retirement ⁴	-2,053	20	-3,051	-1,360	2,251	4,128	5,111	5,046
Alternate plan:								
Cash receipts	2,923	3,541	4,056	5,246	7,014	8,387	9,127	40,294
Total cash expenses	4,976	3,521	7,107	4,366	7,398	4,326	4,460	36,154
Cash farm expenses ¹	3,648	2,194	5,653	2,951	5,966	3,067	3,260	26,739
Living expenses ²	1,200	1,200	1,200	1,200	1,200	1,200	1,200	8,400
Interest ³	128	127	254	215	232	59	0	1,015
Cash available for debt retirement ⁴	-2,053	20	-3,051	880	-384	4,061	4,667	4,140
Cumulative difference in debt retirement capacity (plan followed minus alternate plan)	0	0	-2,240	395	462	906	906	906

¹ Excluding interest cost.

² Assumed to be \$1,200 per year.

³ Long-term credit cost was assumed to be 4 percent of long-term credit needed at the end of the year. Short-term credit interest cost was assumed to be .06 x .75 = 4.5 percent of short-term credit needed at the end of the year. Seventy-five

hundredths was used because the average amount of short-term credit outstanding per year was assumed to be approximately three-fourths of the credit balance at the end of each year.

⁴ Total receipts minus farm and family cash expenses. Cash expenses include operating expenses, \$1,200 yearly living expenses, and interest expense.

Financial Progress of Farmer Y under the 7-Year Improvement Plan
Followed Compared with an Alternate Plan, 1948-54.

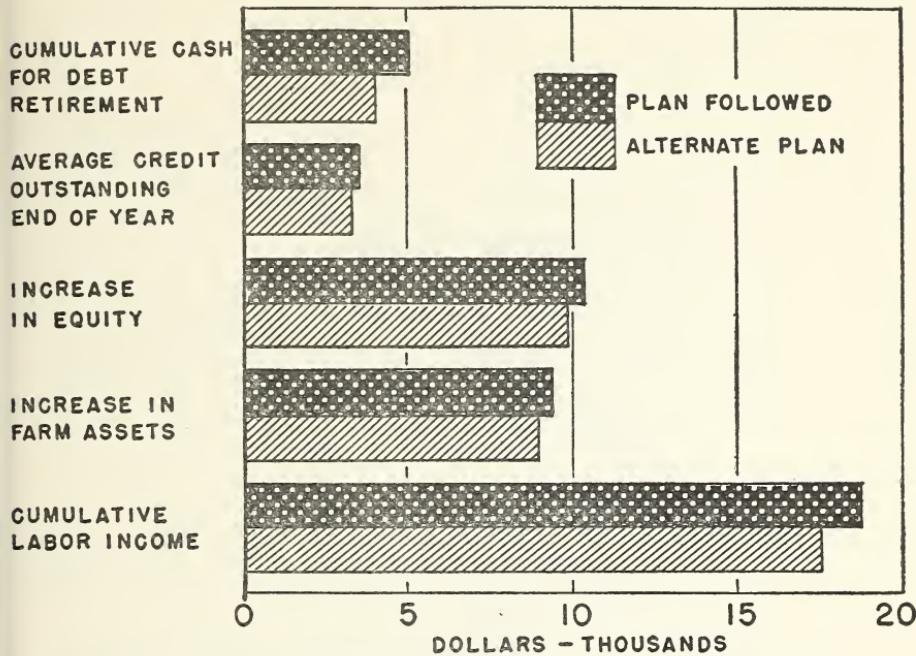


Figure 3

ing the size and improving the quality of his dairy herd. He built a milking parlor which resulted in greater labor efficiency and higher quality milk. He started with 3 dairy cows, had 7 by 1951, and expected to have 20 by 1954. Under the plan followed, Mr. Y completed a milking parlor and was selling grade A milk by 1951. Expenditures for making these improvements for the 7-year period totaled \$10,788. Real estate improvements, including land purchased, accounted for \$7,318 and other \$3,470. Total improvement expenditures for the 7-year period were 63 percent of total assets at the mid-year of the improvement plan.

The cooperative credit lender made a significant contribution in

this case in that he enabled Farmer Y to complete a milking parlor 1 year earlier than he anticipated and to increase his dairy herd more rapidly. Farmer Y had four more cows during the last 3 years of the program than he originally planned.

The lender's actions, coupled with the borrower's farm management ability, resulted in (1) approximately 22 percent more cash available for debt retirement for the 7-year period, (2) a 5 percent higher yearly average volume of credit outstanding, (3) over 3 percent higher equity and total assets, and (4) a 7 percent higher labor income for the 7-year period (figure 3 and table 2). All the increase in labor income came during the latter part of the improvement program (figure 4).

Labor Income of Farmer Y under the 7-Year Improvement Plan Followed Compared with an Alternate Plan, 1948-54.

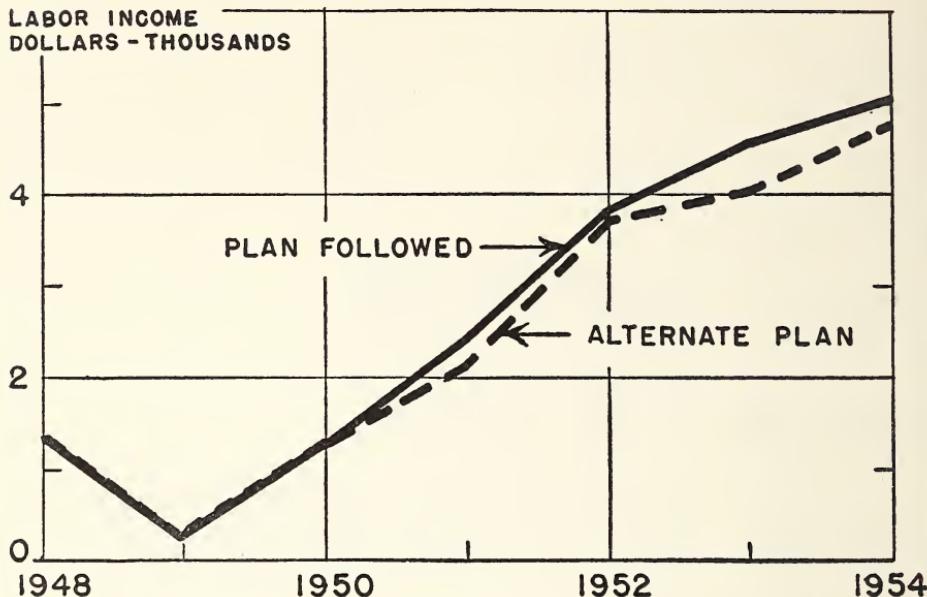


Figure 4.

On this farm relatively simple action on the part of the lender permitted the borrower to make adjustments at a more efficient rate. This resulted in greater financial progress.

Credit restriction by the lender apparently was an impediment to the financial progress of Farmer Z.

Farmer Z, a cooperative credit member, had an alternate farm improvement plan which he wanted to follow, but the PCA would not lend him enough to complete the improvements at as efficient a rate as he desired.

Farmer Z had an excellent farm background and was highly respected in his community. He was energetic and showed every indication of success as a dairy farmer. The improvement program on this farm started in 1946.

In December of that year he had a net worth of approximately \$14,000. Total assets exceeded \$19,000.

Major improvement enterprises in the plan followed included: (1) soil fertility improvements, (2) increasing the number of mature dairy cattle from 7 in 1946 to 16 in 1952, (3) a milking parlor and conversion to grade A milk by 1952, (4) other barn improvements from 1946 to 1950 needed to handle a larger dairy herd, and (5) increasing hog production.

The alternate plan which Mr. Z wanted to follow but was prevented from doing so because of credit limitations included: (1) essentially the same fertility program as the plan followed, (2) a larger increase in numbers of mature dairy cattle—from 7 in 1946 to 20 by 1950, (3) a milking parlor and conversion to grade A milk in 1946, (4) barn

improvements in 1946 needed to handle a larger dairy herd, and (5) increasing hog production the same as in the plan followed.

Thus, the major differences between the two plans were: (1) dairy cattle numbers would have increased more rapidly with the alternate plan which the borrower desired to follow, (2) grade A milk sales would have been realized in 1946 with the alternate plan but not until 1952 with the plan followed, and (3) barn improvements needed to handle the dairy herd more efficiently would have been essentially completed in 1946 with the alternate plan desired, while with the plan followed they were completed in 1952.

As a result of limited availability of credit, Farmer Z had (1) no

money available for debt retirement during the 7-year period but, had he been able to carry out his original plan, he would have had \$5,444 available for debt retirement, (2) a 9 percent higher yearly average volume of credit outstanding, (3) a 6 percent lower average equity and a 3 percent lower average ratio of equity to total assets, and (4) a 24 percent lower labor income for the 7-year period (figure 5 and table 3). During the first 4 years under the alternate improvement plan, he would have had more credit outstanding. At the end of no year, however, would the ratio of net worth to total farm assets have been below 64 percent.

This is an example of the effect of credit rationing upon a farmer's progress where the borrower had a

Financial Progress of Farmer Z under the 7-Year Improvement Plan Followed Compared with an Alternate Plan, 1946-52.

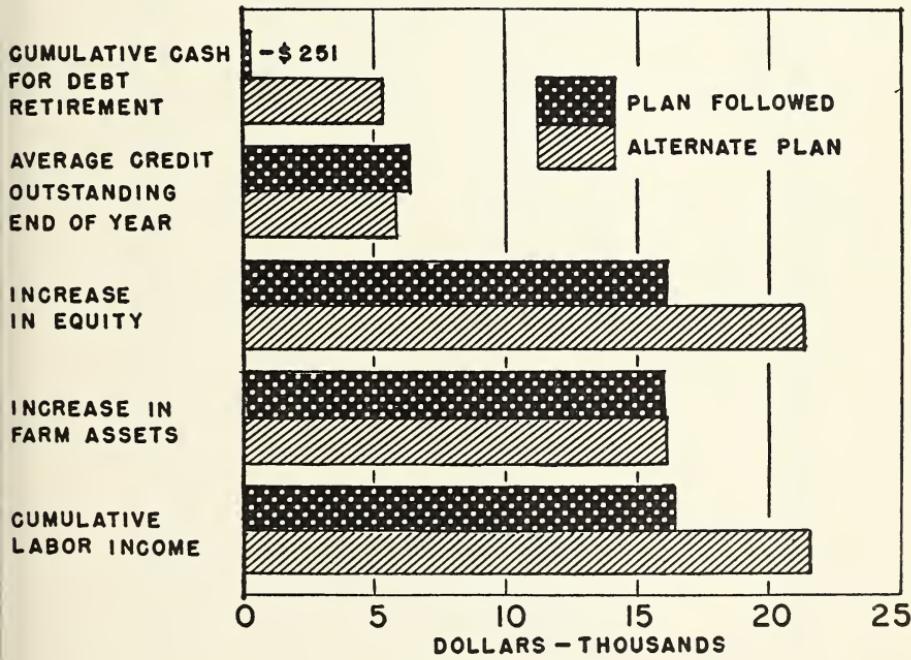


Figure 5.

Table 3.—Receipts, expenses, and cash available for debt retirement under farm improvement plan followed and alternate plan, Farmer Z in Indiana, 1946-52

Item	Year in improvement plan							Total
	1	2	3	4	5	6	7	
Plan followed:								
Cash receipts	\$4,498	\$5,886	\$6,946	\$8,008	\$6,246	\$8,339	\$9,851	\$49,774
Total cash expenses	5,288	6,672	8,169	7,154	5,249	9,232	8,261	50,025
Cash farm expenses ¹	3,852	5,201	6,638	5,661	3,801	7,744	6,840	39,37
Living expenses ²	1,200	1,200	1,200	1,200	1,200	1,200	1,200	8,400
Interest ³	236	271	331	293	248	288	221	1,888
Cash available for debt retirement ⁴	-790	-786	-1,223	854	997	-893	1,590	-251
Alternate plan:								
Cash receipts	4,498	6,446	7,168	8,846	8,905	10,601	11,600	58,064
Total cash expenses	7,321	7,364	7,935	6,805	6,137	9,208	7,850	52,620
Cash farm expenses ¹	5,794	5,796	6,332	5,289	4,741	7,867	6,650	42,469
Living expenses ²	1,200	1,200	1,200	1,200	1,200	1,200	1,200	8,400
Interest ³	327	368	403	316	196	141	0	1,751
Cash available for debt retirement ⁴	-2,823	-918	-767	2,041	2,768	1,393	3,750	5,444
Cumulative difference in debt retirement capacity (plan followed minus alternate plan)	2,033	2,165	1,709	522	-1,249	-3,535	-5,695	-5,695

¹ Excluding interest cost.

² Assumed to be \$1,200 per year.

³ Long-term credit cost was assumed to be 4 percent of long-term credit needed at the end of the year. Short-term credit interest cost was assumed to be .06x .75 = 4.5 percent of short-term credit needed at the end of the year. Seventy-five

hundredths was used because the average amount of short-term credit outstanding per year was assumed to be approximately three-fourths of the credit balance at the end of each year.

⁴ Total receipts minus farm and family cash expenses. Cash expenses include operating expenses, \$1,200 yearly living expenses, and interest expense.

good farm improvement plan. The fact that this lender had an excellent record of service to his community, yet in this case did not provide credit on the terms needed, indicates the opportunity for improvement in lending practices.

In each of the three farms studied, the effect which lenders have upon borrowers' financial progress was revealed. Thus lenders' responsibilities are great.

On the first farm, the lender encouraged the borrower to adjust his farm organization plans. This

resulted in a higher labor income. On the second farm the lender, by relatively simple action, successfully encouraged Farmer Y to improve his operations at a more efficient rate. On these two farms, lenders were very helpful in the rapid financial progress of the borrowers. However, on the third farm the lender's action restricted the borrower's progress.

The farm studies clearly indicate the importance of lenders and credit in improvement programs. What then are the specific credit characteristics to consider relative to financing farm adjustments?

Characteristics of Improvement Programs

Require Large Investments

One of the first credit considerations in financing farm adjustments is that such programs require large investments and the investment rate generally continues at a high level for 2 to 7 years.

This characteristic of credit was indicated particularly in the analysis of the farm improvement programs obtained from 56 members of PCA's and NFLA's.

The average starting year for these programs was 1946. Actual improvements made were recorded for the years up to and including the date of the interviews (latter part of 1951 and early 1952). Future improvements were estimated for enough years after the date of the interview to complete a 7-year improvement program.

Improvements on the 56 farms

included soil building, repairing and erecting buildings, and increasing livestock (figure 6). Improvements were about one-half real estate and one-half non-real estate. Real estate expenditures generally declined irregularly during the 7-year period but non-real estate improvements remained at a high level. This was not, however, consistently the situation. Where drastic changes were taking place in the type of agriculture, total improvement expenditures usually remained high for 5 to 7 years. This was true when farmers converted from row-crops to more of a grassland livestock economy as frequently observed in Georgia. The initial low fertility on some farms also was a factor in keeping expenditures high.

Conversely, in areas where grass was already established as a part

Average Annual Improvement Expenditures, by Type of Improvement, 56
Cooperative Credit Members, Selected Areas, United States,
Average Starting Year 1946.

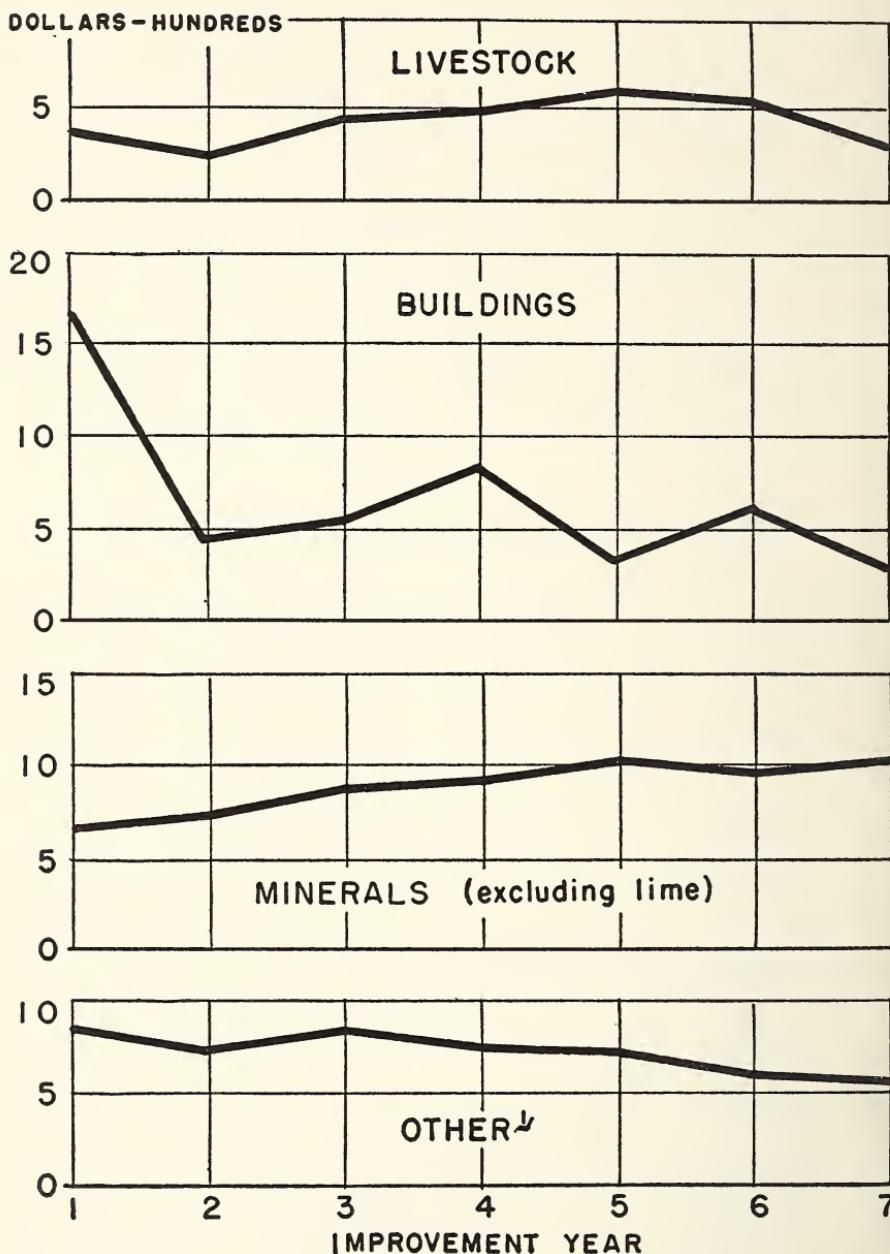


Figure 6.

¹ Other included pasture seeding, fences, physical land changes, lime, machinery, irrigation water fees, drainage and water systems.

of the farm program, livestock investments were made at an earlier date in the improvement program. Thus, adjustment expenditures declined earlier in southern Indiana where grasses and legumes were established in the general farming programs and in the Tri-County Irrigation Area of south central Nebraska where grasses were already established and water was the major problem.

Using credit to finance relatively large improvement expenditures frequently leads to the problem of maintaining a sound balance between equity and assets. This problem is age old with other uses of farm credit and certainly must be considered when financing improvement programs such as those studied in this project. Equity considerations generally were more acute with real estate assets and

long-term credit used to finance real estate or improvements fixed to the land. Information obtained in this study gives some indication of why this is true. On 54 farms included in this project, real estate expenditures averaged 70 percent of the value of fixed farm assets as appraised near the beginning of the improvement programs. On 23 of the farms, fixed improvement expenditures exceeded 65 percent of the value of the fixed assets as estimated by the credit cooperatives. Thus, the problem with long-term credit is obvious. Short-term credit for improvements has presented a similar equity problem, although perhaps slightly less intense.

Increase Farm Returns

While investment requirements were large, increased farm returns also were high

Table 4.—Average improvement expenditures and estimated increase in net income per farm for 7-year improvement programs for 56 farms, four selected areas, United States, 1951-52¹

Area	Number of cases	Im- prove- ment expendi- tures 7 years	Net income at start of im- prove- ment program	Expect- ed net income at end of im- prove- ment program	Increase in net income	Percent increase in net income	Percent annual return expected from improve- ments
Georgia-----	13	\$34, 948	\$3, 503	\$6, 231	\$2, 728	78	8
Indiana-----	14	17, 416	4, 453	7, 464	3, 011	68	17
Kentucky-----	18	14, 792	2, 378	4, 789	2, 410	101	16
Nebraska-----	11	10, 084	2, 016	3, 977	1, 961	97	19
Total-----	56	19, 207	3, 087	5, 633	2, 546	82	13

¹ Each borrower estimated (1) the percentage increase in his net income between the beginning and the completion of the 7-year improvement program, and (2) his expected net income upon completion of the improvement program. Net income at the beginning of the improvement program and increase in net income were computed from that data.

$$\text{Net income at beginning} = \frac{\text{net income upon completion}}{\text{expected percentage increase} + 1.00} \text{ and}$$

$$\text{Increase in net income} = \text{net income upon completion} - \text{net income at beginning}.$$

after sound improvement programs had been carried out.

This relationship is indicated by the experience on the 56 farms summarized in table 4. While based in part on estimates, the returns expected by these farmers from their investments were substantial.

The net farm income at the beginning of the 7-year adjustment programs averaged \$3,087 a year. Estimated increased income resulting from improvements averaged \$2,546 a year, an increase of 82 percent. Thus, the average annual

return expected from an average investment of \$19,207 was 13 percent.

The net worth of those engaged in improvement programs increased three times more than the estimated average for the United States. Financial statements adequate for comparison purposes were available on 36 farms. The average net worth on these farms increased 74 percent during an average of nearly 4 years (\$16,822 to \$29,244). During the same period (1947-51), farmers' equities for the United States increased only 26 percent.⁴

Types of Loans Adapted to Improvement Financing

In gearing loan repayment plans to repayment capacity, the need for spreading the repayment plan over a period of years becomes an obvious necessity since the investments generally are made over a period of 2 to 7 years and are of sufficient size to preclude repayment within 12 months.

The need for some type of intermediate-term credit was clearly evident in most improvement plans in this study. The study of the improvement programs on the 56 farms indicated that long-term credit decreased slightly on the average for 40 borrowers but credit, other than long-term, increased 22 percent from the first to the fifth year (figure 7). On the three farms studied, the average budgeted credit outstanding at the end of each year did not decline until the fourth year (figure 8). Not until the end of the fifth year did credit outstanding

average less than the first year.

Two- to 7-Year Notes

With respect to methods of spreading the repayment period, two-thirds of the farmers and farm leaders interviewed said farmers favor notes with stated terms matching the expected repayment period with only one-third preferring 12-month notes with renewals (table 5).

The principal reasons expressed by those favoring the longer term notes for improvement financing were that without assurance of specific loan terms borrowers may feel insecure. This is due mainly to policy uncertainties which might accompany personnel or other non-economic changes or to uncertainties arising from economic or physical changes beyond the control of

⁴*Agricultural Statistics 1952, U.S. Department of Agriculture, table 646.*

Annual Maximum Amount of Credit Outstanding per Farm During First 5 Years of Improvement Programs, 40 Cooperative Credit Members, Selected Areas, Average Starting Year Late 1945.

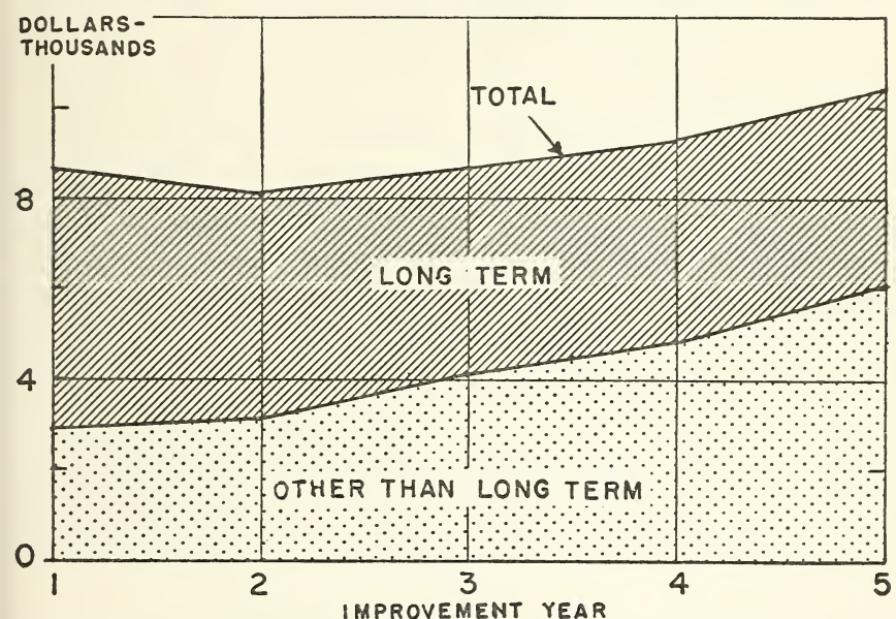


Figure 7.

Average Credit Outstanding at end of Each Year for six Budgeted Farm Improvement Programs, Two on each of Three Farms, Louisville Farm Credit District, Four Programs 1948-54 and Two Programs 1946-52.

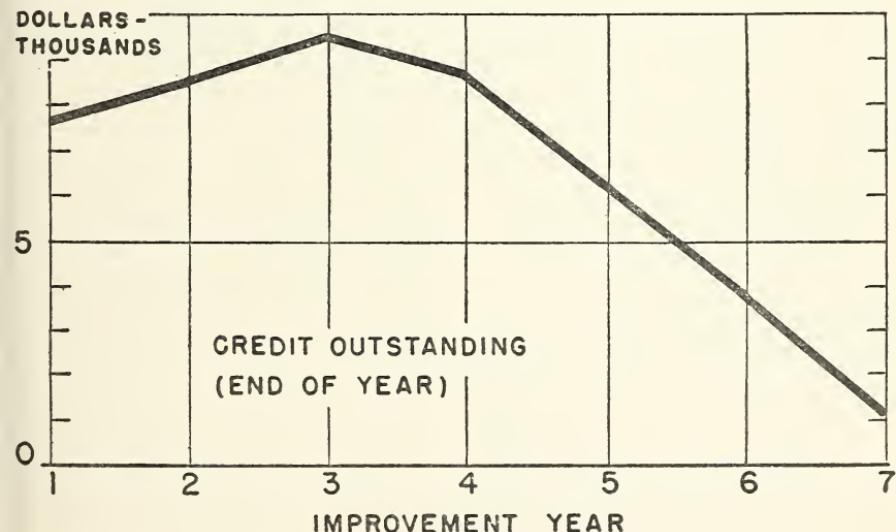


Figure 8.

the borrower or lender. Some mentioned that there would be some economies in financing improvements with intermediate-term loans. In response to a question on that point, nearly two-thirds of the farmers indicated that the use of 3-year notes as compared with 1-year notes would require less time and cost.

Notes Renewed Yearly

Farmers who were associated with PCA's and who therefore had had experience with financing on a yearly renewal basis indicated somewhat greater preference for the 12-month note than those who had not been associated with PCA's (table 5).

Fifty-six percent of the farmers who were PCA members only, and 42 percent of those who were PCA and NFLA members, preferred 12-month notes on a yearly renewal basis. Thus, one-half of the conferees who were PCA members not holding officer positions preferred yearly renewals. Their major reason was that this procedure offers the borrower and lender an opportunity to review the borrower's physical and financial progress. It helps to keep his line of credit on a sound basis, encourages more rapid repayment, and aids in the exchange of advice and ideas.

Although two-thirds of the farmers and farm leaders interviewed said that farmers preferred a 2- to 7-year note to a

Table 5.—Replies to question "When using credit for improvements which have a 2- to 7-year program, do farmers prefer: (a) a 12-month note on a probable renewal basis, or (b) a note of sufficient length (2 to 7 years) to cover their expected capacity to repay?" by 174 farmers and farm leaders, selected areas, 1951-52

Farmers or farm leaders interviewed	Number interviewed	Number preferring 12-month notes	Percent preferring 12-month notes
Associated with PCA:			
PCA members	25	14	56
PCA-NFLA members ¹	26	11	42
PCA-NFLA officers ¹	9	3	33
PCA officers	35	9	26
Sub-total or average	95	37	39
Not associated with PCA:			
NFLA members	12	5	42
NFLA officers	37	10	27
Soil Conservation Service representatives	4	1	25
County agents	26	5	19
Sub-total or average	79	21	27
Total or average	174	58	33

¹ Includes members or officers of both associations.

Table 6.—Replies to question "Which is most important during a 2- to 7-year improvement program: (a) borrower and lender review farm operations, progress and credit needs yearly at time of note renewal, or (b) take advantage of a possible saving in time and expense by use of a longer term note?" by 174 farmers and farm leaders, selected areas, 1951-52

Farmers or farm leaders interviewed	Number interviewed	Number preferring annual renewals	Percent preferring annual renewals
Associated with PCA:			
PCA members	25	23	92
PCA officers	35	30	86
PCA-NFLA members ¹	26	18	69
PCA-NFLA officers ¹	9	6	67
Sub-total or average	95	77	81
Not associated with PCA:			
County agents	26	19	73
Soil Conservation Service representatives	4	2	50
NFLA members	12	6	50
NFLA officers	37	13	35
Sub-total or average	79	40	51
Total or average	174	117	67

¹ Includes members or officers of both associations.

12-month note with a possible renewal, two-thirds of them said that the advantages of the annual review, which is an integral part of the annual maturity and renewal plan, are more important than the savings in the use of longer term notes.

Here again, as shown in table 6, those associated with PCA's were more positive in expressing this view. The reasons given most frequently for this opinion were basically similar to the reasons given above in preferring 12-month notes over 2- to 7-year notes—that the annual maturity and review method permits a yearly loan examination (table 7).

In connection with renewals, farmers and farm leaders were asked whether farmers in their respective communities have confidence in the "PCA yearly renewal system." Four-fifths of the replies were definitely "yes." About 5 percent indicated a substantial lack of confidence.

PCA's Provide Effective Improvement Financing

PCA experience indicates that farm improvements can be financed effectively with annual maturity notes and appropriate renewals.

The many improvement programs financed successfully, as observed in this study, clearly indi-

Table 7.—Reasons for answer to "Which is most important during a 2- to 7-year improvement program: (a) borrower and lender review farm operations, progress, and credit needs yearly at time of note renewal or (b) take advantage of possible saving in time and expense by use of a longer term note? Why?" given by 174 farmers and farm leaders, selected areas, 1951-52

Reason for answer	Frequency of reason ¹	Percent of related reasons
(a) Permits a yearly examination of the borrower's progress—enables the borrower and lender to set up, maintain, and manage a sound credit program-----	91	57
(a) Permits an exchange of information which can be helpful to both, but especially helpful to the borrower in solving various farm management problems-----	30	19
(a) Keeps borrower aware of his obligation to repay—has the effect of encouraging rapid repayment-----	21	13
(a) Other-----	18	11
Total (a) above-----	160	100
(b) Long-term notes are desirable to compensate for future economic or other uncertainties-----	13	24
(b) Possible to save time and expense and still review a line of credit yearly-----	13	24
(b) Less trouble or time involved for borrower or lender. Collateral could be in the form of land or yearly redescription of chattels-----	4	7
(b) Farmers resent credit agency supervision; thus the less contact there is between the borrower and the lender, consistent with sound credit management, the smoother will be the working relationship between the two-----	3	5
(b) Other-----	22	40
Total (b) above-----	55	100

¹ All expressed one or more reasons.

cated that where the farmer had the necessary management ability and the lender was well qualified, intermediate-term credit was extended efficiently with 12-month notes on a renewal basis combined with long-term credit. To examine the renewal procedure and policy in greater detail, a study was made of PCA loan renewals in the western Kentucky Jackson-Purchase area. Information was obtained on 378 loans which were approved by the

loan committee in 1950. These loans were selected at random.

For the 1-year period, the original commitments plus additional advances averaged \$2,389 per borrower. This included an average of \$326 renewed from the previous year's loans. At the end of the year an average of \$489, or 20.5 percent of the total borrowed, was renewed and carried over to the next year. Of the \$489 renewed, \$339 was expected or planned, thus

reflecting the policy of carrying over portions of loan proceeds used for capital purposes which cannot be repaid within 12 months. The unexpected renewals, averaging \$150, arose from delayed marketing and difficulties such as crop failures and livestock disease.

Further analysis indicated that the unexpected renewals generally were associated with the "problem" loans. No difficulty was indicated with the expected renewals.

Aside from renewals, a very sub-

stantial part of the advances made by this PCA was for financing farm improvements. Of the average total loan of \$2,389, 43 percent was used to purchase livestock, 13 percent for machinery and equipment, 3 percent for fertilizer and lime, and 2 percent for buildings.

The analysis indicated further that the annual maturity with renewals provided satisfactorily the flexibility needed in adjusting credit to the varying needs of borrowers engaged in improvement programs.

Other Considerations in Improvement Financing

Balance Between Long- and Short-Term Credit

In financing farm improvements, maintaining an appropriate balance between long- and short-term credit should be considered.

Analysis of data from 40 farms on which improvement programs had been in progress five or more years indicated that some farmers would profit by a better proportion of long- to short-term credit. On the farms suggested for study by PCA's, short-term credit accounted for 56 percent of the maximum credit outstanding. On farms suggested by NFLA's, long-term credit was 67 percent of the credit used. Occasionally enthusiastic PCA members financed nearly all their improvements with short-term credit, thus paying a higher rate of interest for that portion which could have been on a longer-term. Conversely, some NFLA members used long-term land bank credit to

finance nearly all their farm operations. This tended to result in (1) a restricted volume of available credit, (2) relative inflexibility of credit, and (3) repayment plans longer than needed in some instances in light of the repayment capacity. These disadvantages have been largely eliminated by those PCA's and NFLA's that have closely coordinated their activities.

Several factors may be considered in determining the proper balance between long- and short-term credit. Long-term credit in most cases should be used up to or slightly beyond the minimum yearly total credit requirement during the improvement program, if collateral limitations permit. If this procedure is followed, some borrowed money may be idle during part of the year. But, long-term interest rates are generally lower than short-term rates, so even if some

funds are idle, it would be profitable to pay interest for a short period during the year on a small volume of unused long-term credit. Thus, during most of the year, money would be saved by using some long-term low-cost credit in place of part of the short-term, relatively high-cost credit.

Short-term credit is necessary to attain the credit flexibility needed for improvement programs. Total credit needs for a period of 6 months or longer are difficult to estimate accurately. Repayments are equally difficult to predict. Thus, a credit program should have sufficient flexibility to enable the total volume of credit outstanding to fluctuate with relative ease during each year.

In summary, borrowers tend to be "loyal" to one credit agency. Under existing institutional arrangements, extreme loyalty to any one lender may be an impediment in obtaining balanced credit programs. Farmers who prefer to use cooperative credit should work closely with both a PCA and an NFLA in order to obtain the proper ratio between long- and short-term credit and the necessary volume of total credit. Likewise, it behooves both of the cooperative credit agencies to take the initiative in closer coordination so as to insure farmers a steady flow of easily accessible credit on the best possible terms.

More Information Needed

Farmers need more information regarding the services available from credit cooperatives for financing farm improvements.

The surveys in this study show farmers need two types of additional help. First, they need information which will assist them in deciding whether to undertake improvement programs on their farms. The 174 farmers and farm leaders were asked, "What or who influences most farmers in your community to start improvement programs on their farms?" The most frequent replies—mentioned 80 times—specified county agricultural agents or the extension service. Next in importance was neighbors, mentioned 68 times. In third place was the influence of such programs as the Agricultural Adjustment Administration, Soil Conservation Service, Tennessee Valley Authority, and the Tri-County Irrigation Project. The expectation of increasing income resulting in better family living and the availability of favorable credit terms were also mentioned.

The second type of educational help needed by farmers is information regarding both the general credit facilities available and, more particularly, the methods of financing farm improvements. In a recent Pennsylvania study, 78 percent of the farmers did not know the secretary-treasurer of the local NFLA and 83 percent did not know the secretary-treasurer of the local PCA. On the other hand, only 15 percent were not acquainted with either the local bank president or cashier.⁵

⁵ L. F. Miller and F. A. Hughes, *Credit Sources, Practices and Opinions of Pennsylvania Farmers*, Bulletin 514, Pennsylvania State College, School of Agriculture, June 1949, p. 22.

The lack of familiarity with particular methods of financing farm improvement programs is undoubtedly even greater. In 1946 the Federal Land Bank of Louisville initiated the "Farm Improvement Loan" which was designed to meet specifically the needs of farmers wishing to finance soil conservation and other improvements on their farms. Each of the 69 cooperative credit association members and officers interviewed in the Fourth District was questioned regarding the loan. Only 7 were familiar with its advantages. Not one association director or member was in any way familiar with the "Farm Improvement Loan." The replies indicated that very little effort was made to "sell" the loan to the local credit leaders and association members. Thus, in at least some cases, farmers need to have more information about improvement credit as well as cooperative credit in general.

How should credit agencies go

about informing farmers of the availability of credit? The 174 farmers and farm leaders were asked, "What information has been or should be made readily available by PCA's and NFLA's to farmers in your community regarding the availability and use which might be made of improvement credit?" All replies gave procedures for disseminating improvement credit information. "Personal contacts between members and other farmers" or "personal contacts between association officers and farmers" was mentioned 127 times by the 174 farmers and farm leaders. "Mailing circulars and other information or selected mail campaign" and "advertising by paper, magazine, and radio" were each mentioned about 70 times. Also mentioned frequently were meetings with groups such as 4-H clubs, veterans, and Farm Bureau, and maintaining close contacts with county agents and other agricultural leaders.

**Other Publications Available
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Agricultural Financing Through the Farm Credit Administration, *Circular 5.*
Using Credit to Farm, *Circular E-31.*
Farmers Need Special Credit Facilities, *Circular E-26.*
Using Your National Farm Loan Association, *Circular E-16.*
The Federal Land Bank System—How It Operates, *Circular 35.*
Appraising Your Farm, *Circular 13.*
Using Your Production Credit Association, *Circular E-17.*
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